

Joint Biomedical Engineering Seminar Series

MU ▪ MCW ▪ UWM

Friday, February 26, 2016

Noon-1pm

Olin Engineering 202

Marquette University

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Abstract

Baseball Pitching Mechanics: Implications on Injury Risk

Joint forces and moments are important factors in determining the risk of injury to baseball pitchers. Due to the repetitive nature of pitching, pitchers are at a high risk for sustaining injuries to the upper extremity (UE) joints. Two critical periods of high risk of injury have been identified in current literature: 1) shortly before the point where the arm reaches maximum external rotation, when shoulder internal rotation torque and elbow valgus torque are generated and 2) shortly after ball release, when shoulder compression force, posterior force and horizontal abduction torque are generated. Identifying pitchers who have higher risk of injury can assist coaches as they learn to employ corrective actions to modify throwing biomechanics and lessen or totally avoid injury.

A motion analysis system has been used to capture the motion of professional baseball pitchers so that a database of healthy, normal pitching mechanics could be developed. Preventing injuries to pitchers is an important goal for every baseball team. Throwing arm injuries could keep a pitcher out for a year due to surgery and rehabilitation or even be career ending. Shoulder and elbow joint forces are metrics that may indicate propensity for injury. Developing an effective biomechanical model that calculates throwing arm kinetics may help in determining injury risk in pitchers so that their mechanics may be altered appropriately.

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Olin Engineering Center is located at 1515 W. Wisconsin Ave, Milwaukee, WI. Parking is available in Structure 1 on 16th Street between Wisconsin Ave. and Wells Ave. Refreshments will be served.